Iron deficiency in children

Iron deficiency and iron deficiency anemia are common conditions in children, especially in developing countries. It is often difficult for the pediatrician to know which indices should be used in the diagnosis of these conditions in children. Reticulocyte hemoglobin (Hb) content (CHr) has been shown to be an accurate indicator of anemia, however whether its use suits the situation in developing countries or not is unclear. The aim of this study was to evaluate the value and effectiveness of using CHr as a method to diagnose iron deficiency and iron deficiency anemia in Saudi children. The samples for the study were collected from 305 children suspected to have anemia. Complete blood count, transferrin saturation (Tfsat), ferritin, circulating transferrin receptor (TfR) and CHr were measured. Three groups were defined, iron deficiency (Tfsat <20%, Hb >11 g/dL; *n*=120), iron deficiency anemia (Tfsat <20%, Hb <11 g/dL; (*n*=73) and controls (Tfsat >20%; *n*=112). The anemic group had significantly lower macrocytic anemia (MCV), mean corpuscular hemoglobin (MCH) and CHr. All of the variables in the anemia group were significantly lower than those of the control group except for the ferritin level. Compared to the control group, the iron deficiency group also showed significantly lower values except for transferrin receptor and the ferritin levels. CHr levels of <26 pg correlated well with anemic states. CHr together with a complete blood count may provide an alternative to the traditional hematologic or biochemical panel for the diagnosis of iron deficiency and iron deficiency anemia in young children and is cost-effective in developing countries. A CHr cut-off level of 26 pg is considered to be a reasonable indicator of anemic states.